CLAIMS

WE CLAIM AS OUR INVENTION:

1. A dual coil induction cooking system comprising:

a first resonant circuit for inducing a current in a ferrous metal cooking vessel at a first frequency;

a second resonant circuit, wired in a parallel combination with the first resonant circuit, for inducing a current in a non-ferrous metal cooking vessel at a second frequency; and

a power source for powering the parallel combination, without changing a wiring arrangement to the parallel combination, so that one of the first and the second resonant circuits is coupled to supply power through the parallel combination to a respective one of the cooking vessels.

- 2. The system of claim 1, wherein the first resonant circuit further comprises a first capacitor and a first coil wired in series.
- 3. The system of claim 2, wherein the first resonant circuit further comprises an inductor wired in series with the first capacitor and the first coil.
- 4. The system of claim 1, wherein the second resonant circuit comprises a second capacitor and a second coil wired in series.
- 5. The system of claim 4, wherein the second resonant circuit further comprises an inductor wired in series with the second capacitor and the second coil.
- 6. The system of claim 1, wherein the power source is configured to operate at the first frequency and the second frequency.

- 7. The system of claim 1, wherein the power source is configured to operate at an intermediate frequency between the first frequency and the second frequency.
- 8. The system of claim 1, wherein the power source further comprises a frequency varying circuit for sequentially varying a frequency of power provided to the parallel combination.
- 9. The system of claim 8, wherein the frequency varying circuit is configured to vary the frequency of power provided to the parallel combination from a comparatively higher frequency to a comparatively lower frequency.
- 10. The system of claim 8, wherein the frequency varying circuit is configured to vary the frequency of power provided to the parallel combination from a comparatively lower frequency to a comparatively higher frequency.
- 11. The system of claim 1, wherein the power source further comprises a detector for identifying at least one resonant frequency of the parallel combination.
 - 12. A dual coil induction heating system comprising:
 - a first circuit branch;
 - a second circuit branch; and
- a power source, wired to the first circuit branch and the second circuit branch, for energizing at least one of the first and the second circuit branches based on a magnetic property of a load to couple power to the load.
- 13. The system of claim 12, wherein the magnetic property is the permeability of the load.
 - 14. The system of claim 1, in combination with a cooking appliance.

- 15. A dual coil induction heating system comprising:
- a first resonant circuit branch;
- a second resonant circuit branch wired in a parallel circuit with the first resonant circuit branch; and
- a frequency power source wired to the parallel circuit so that at least one of the first and the second resonant circuit branches resonates to induce a heating circuit in a load based on the load type.
 - 16. The system of claim 15, wherein the load is a metallic load.
 - 17. A dual coil induction cooking system comprising:
- a first series resonant circuit comprising a first cooking coil, the first series resonant circuit tuned to resonate at a first frequency with a first load;
- a second series resonant circuit comprising a second cooking coil, the second series resonant circuit wired in a parallel circuit with the first series resonant circuit and tuned to resonate at a second frequency with a second load; and
 - a frequency source for driving the parallel circuit.
- 18. A method for coupling power to a load in an induction cooking system having two cooking coil resonant circuits powered by a variable frequency power source, the method comprising:

sweeping at least one of the resonant circuits with a variable frequency power;

detecting a resonant frequency response indicative of coupling between the load and at least one of the resonant circuits; and

powering at least one of the resonant circuits at a frequency corresponding to the detected resonant frequency.

19. The method of claim 18, further comprising varying the variable frequency power from a comparatively higher frequency to a comparatively lower frequency.

20. The method of claim 18, further comprising varying the variable frequency power from a comparatively lower frequency to a comparatively higher frequency.